

N E T A F I M U S A

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Spray Stakes

Watering System

for Potted Plants

and Nursery

Containers

Saves Water,

Labor and Energy



 **NETAFIM™**
GROW MORE WITH LESS



Netafim Spray Stakes Deliver Precise Amounts of Water and Fertilizer Directly to the Plant



Are You Hand Watering?

Check the math. Hand watering a plant three seconds a day costs roughly \$0.25 per month. That means by the time you sell the plant, the Netafim spray stake system will have paid for itself.

Are You Using Sprinklers Fed by Ponds or a Well?

Water is heavy. It takes energy to move it around. It takes LOTS of energy to move it at high pressures. Over 2/3 of water pumping costs can be saved by converting an overhead sprinkler system to a low pressure Netafim spray stake system.

Are You Using Sprinklers with City Water?

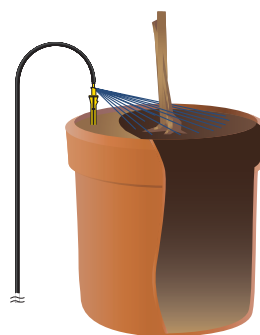
Do you get a monthly water bill? Growers using municipal water sources for overhead sprinkler systems can typically pay for the conversion to a Netafim spray stake system in one season from the water savings alone.

The Netafim Spray Stake pattern is specifically designed to match the shape of the pot and provide a precise amount of water and fertilizer directly to the plant. The pattern wets the soil surface evenly to maximize water retention by the soil mix and evenly release liquid or timed-release fertilizers. Overspray or water runoff is eliminated saving water, energy and fertilizer costs.

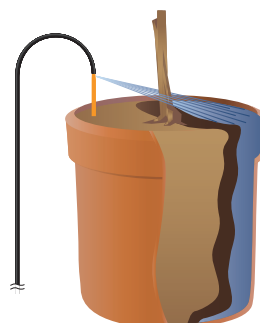
Superior Wetting of the Soil Mix Improves Plant Quality and Conserves Resources

Netafim Spray Stakes were built from the beginning to fill the needs of the nursery grower. The spray pattern angles downward, just enough, to keep the spray on the soil and not flying into or over the wall of the pot. Water flying out of the pot is wasted, while water that hits the side of the pot typically runs down and out the bottom and is not effective in wetting the soil mix.

Water retained by the soil mix is the most important measure of the effectiveness of a spray stake. A poor spray pattern may look good to the eye, but in fact does not apply water uniformly over the soil surface resulting in poor water retention. The Netafim spray pattern provides maximum water retention by the soil mix - exactly what the plant needs. The result is superior plant growth and more efficient use of water resources and fertilizers.



Good Wetting Pattern
Even distribution means little or no water and fertilizer will be lost from drainage and the roots will grow evenly throughout.



Poor Wetting Pattern
When water is not evenly distributed over the surface of a container, overwatered 'hot spots' develop and water channels quickly through the mix and drains away before the plant can use it.



The Simplest, Most Dependable Spray Stakes

Rugged and Reliable One-Piece Construction

Netafim Spray Stake's simple one-piece construction provides reliable long life performance with over 15 years of proven field experience. They are highly resistant to sunlight, fertilizers and chemicals. Installation is very simple and the Netafim micro-tubing fits securely to the top of the spray stake.

Super Simple To Clean

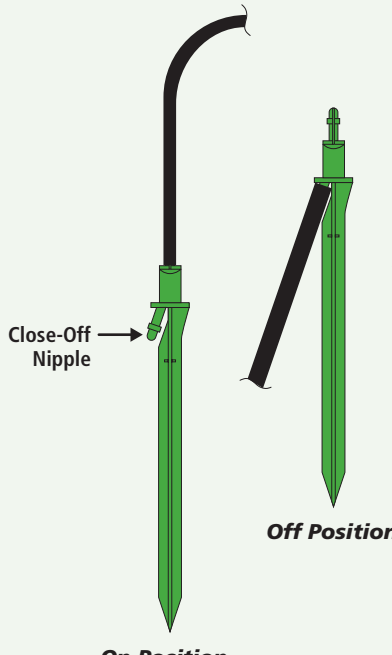
Tough water? Netafim Spray Stakes are made for real-world field conditions. If blockage occurs, simply remove the spray stake from the micro-tubing, rinse the flow channel and reconnect the spray stake and micro-tubing. The spray stake can be restored to operation by any level of field worker in a matter of seconds.

'BMP' Friendly

Many states have grower associations adopting Best Management Practices (BMPs) to assure legislators that the horticultural industry does not require heavy-handed outside regulation. Netafim Spray Stakes are a well established solution within BMPs. They may qualify you for government assistance programs designed to promote water conservation – ask your Netafim representative.



Spray Stake
(shown actual size)



Close-Off Nipple

On Position

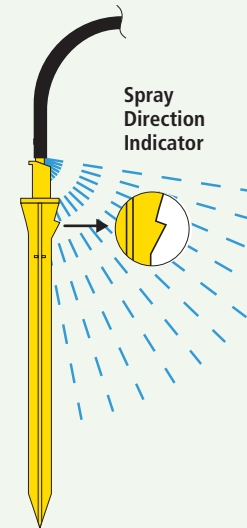
Off Position

Simple Close-Off Feature - Saves Water and is Clog Resistant

The close-off nipple, located on the side of the spray stake, eliminates dirt from entering the tube, a common occurrence with tip-mounted close-off nipples. It also gives a simple, highly visible cue that the stake is closed, not open.

Spray Direction Indicator - Saves Time and Labor with Faster Installation

Each spray stake has a built-in spray direction indicator on one side of the stake. Quickly see or feel the spray direction to speed and simplify installation without having to return and make adjustments.



Spray Direction Indicator



Selecting and Sizing the Right Netafim Spray Stake for Your Application

Step 1

Determine Flow Rate

Most growers start by selecting the flow rate for their spray stake. See the **Product Selection Guide** chart for some general recommendations. Remember, these are not strict limitations, just general guidelines. Many growers with larger pots use higher flow spray stakes, while others prefer to use lower flow spray stakes and simply operate them longer.

Product Selection Guide

Pot Size	Flow Rate	Spray Stake
1 to 5 gallons	3 GPH	Yellow
2 to 7 gallons	5 GPH	Green
5 to 15 gallons	7 GPH	Black

The next consideration is how long a row or "run" of pots you want to water. Lower flow spray stakes can water longer runs than higher flow spray stakes. The **Pipe Sizing and Maximum Row Length** chart will help ensure your spray stake selection fits your design - this will be covered in a later step.

Step 2

Determine Spray Stake Spacing

After selecting the flow rate for the spray stakes in Step 1, the spray stake spacing needs to be determined. Normally this is the spacing between the pots. If your pots are spaced at 48" and you are using one spray stake per pot, your spray stake spacing is 48". If you are using more than one spray stake per pot, then the spray stake spacing is the average spacing between spray stakes. For example, if you had pots spaced 48" apart and are using two spray stakes per pot, the average distance between spray stakes is $48" \div 2 = 24"$.

Pipe Sizing and Maximum Row Length

Spray Stake	Spacing (inches)	Polyethylene (PE) Pipe Size			
		16mm (.520" ID)	1/2" (.600" ID)	3/4" (.820" ID)	1" (1.06" ID)
Yellow 3 GPH	24	114' (57)	144' (72)	258' (129)	408' (204)
	36	153' (51)	192' (64)	342' (114)	540' (180)
	48	188' (47)	236' (59)	416' (104)	652' (163)
	60	215' (43)	275' (55)	480' (96)	760' (152)
	72	246' (41)	312' (52)	546' (91)	858' (143)
Green 5 GPH	24	90' (45)	114' (57)	206' (103)	326' (163)
	36	123' (41)	153' (51)	273' (91)	432' (144)
	48	148' (37)	188' (47)	332' (83)	524' (131)
	60	175' (35)	220' (44)	385' (77)	605' (121)
	72	198' (33)	252' (42)	438' (73)	684' (114)
Black 7 GPH	24	76' (38)	96' (48)	174' (87)	276' (138)
	36	102' (34)	129' (43)	231' (77)	366' (122)
	48	128' (32)	160' (40)	280' (70)	444' (111)
	60	145' (29)	185' (37)	325' (65)	515' (103)
	72	168' (28)	210' (35)	372' (62)	582' (97)
96	200' (25)	256' (32)	448' (56)	704' (88)	

Note: 10% flow variation

Step 3

Determine Supply Pipe Sizing

The **Pipe Sizing and Maximum Row Length** chart will help you select the pipe sizing appropriate for your design. Larger pipes allow for longer runs and this chart will help you pick the right size pipe. The chart lists both the maximum run length in feet and the number of pots (shown in parenthesis). Using the Spray Stake color (flow rate) you selected in Step 1 and the spacing you determined in Step 2, read across the **Pipe Sizing and Maximum Row Length** chart until you find the length which is greater than your row length. Refer to the column heading above this number for the pipe size to use.

Note: This chart is intended for designs on flat ground. For sloping ground, use a qualified Netafim dealer to assist you with your design.

Reading the Pipe Sizing Chart

160' (40)

Flow: 7 GPH, Black Spray Stake
 Spacing: 48"
 PE Pipe Size: 1/2"
 Maximum Run Length: 160'
 Number of Pots: 40



Step 4

Zone Sizing Based on Available Flow Rate

Multiply the number of spray stakes you have in each row by the number of rows you will be watering at the same time. This is the total number of spray stakes you want to operate at the same time - a watering "zone". The **Zone Flow** chart will convert that number of spray stakes into gallons per minute (GPM). This zone flow will be helpful in determining the sizing for mainline pipes and other system components.

Zone Flow (GPM)

Spray Stake Flow Rate	Number of Spray Stakes in a Zone									
	200	400	600	800	1,000	1,200	1,400	1,600	1,800	2,000
3 GPH	11	22	33	43	54	65	76	87	98	109
5 GPH	15	31	46	62	77	92	108	123	139	154
7 GPH	20	40	60	80	100	119	139	159	179	199

Based on flow at an average of 15 psi.

Step 5

Sizing the System Components

Recommendations for sizing basic versions of valves, filters, water meters and pressure regulators for your zone flow can be found in these charts. Detailed additional information for performance and specifications can be found on the technical sheets for each component. These are available on our website at www.netafimusa.com, by calling Customer Service at 888-NETAFIM or through our network of qualified dealers.

Note: Sizing the mainline pipes should be done through a certified irrigation designer.

Valves

Item Number	Flow Range (GPM)	Description
Electric (24VAC)		
71640-007425	.25 - 110	1 ½" Nylon 2-Way Valve, Threaded
71610-014600	1 - 175	2" Nylon 3-Way Valve, Threaded
71610-015100	1 - 225	323 Nylon 3-Way Valve, Threaded
71610-017020	1 - 390	3" PVC 3-Way Valve, Slip
71610-017770	1 - 600	4" PVC 3-Way Valve, Slip
71610-015450	1 - 1,300	6" PVC 3-Way Valve, Slip



Filters

Item Number	Flow Range (GPM)	Description
Manual Disc Filters		
70641-003420	10 - 52	1 ½" Long Manual Filter, 120 Mesh
70640-004521	40 - 110	2" Dual Lite Manual Filter, 120 Mesh
70640-006783	80 - 220	3" Twin Lite Manual Filter, 120 Mesh
Automatic Filters - LP Disc-Kleen Series (24VAC)		
70610-022000	50 - 160	2" LP Disc-Kleen, 2 Filters, 120 Mesh
70610-022100	100 - 240	2" LP Disc-Kleen, 3 Filters, 120 Mesh
70610-022200	150 - 320	2" LP Disc-Kleen, 4 Filters, 120 Mesh
70610-022300	150 - 450	3" LP Disc-Kleen, 3 Filters, 120 Mesh
70610-022400	250 - 600	3" LP Disc-Kleen, 4 Filters, 120 Mesh
Automatic Filters - Apollo Series (24VAC)		
70661-015220	500 - 1,200	Apollo Twin, 3 Filters, 120 Mesh
70661-015250	700 - 1,600	Apollo Twin, 4 Filters, 120 Mesh



Water Meters

Item Number	Flow Range (GPM)	Description
70261-005060	8.8 - 110	2" WMR Water Meter, Threaded
70261-009200	45 - 500	3" IRT Water Meter, Flanged
70261-009500	50 - 688	4" IRT Water Meter, Flanged
70261-009740	65 - 1,375	6" IRT Water Meter, Flanged



Pressure Regulators (PRV)

Item Number	Flow Range (GPM)	Description
30520-001300	11 - 35	1 ½" PRV, 20 psi
30540-002400	22 - 70	2" PRV, 20 psi





Ordering the Right Netafim Spray Stake

Use the following Ordering Charts to determine the correct Spray Stake for your application. A complete Spray Stake Assembly consists of one **A** Spray Stake, one **B** Flex Polyethylene (PE) Tubing - either pre-cut to length or in coils and one **C** connector.

Ordering Charts

- A Spray Stake Selection** • Select the spray stake based on flow rate and your design

Flow (GPH)	Stake Color	Item Number	Bag Quantity
3	Yellow	22500-001030	100
5	Green	22500-001120	100
7	Black	22500-001220	100

- B Tubing Selection** • Select the Flex Polyethylene (PE) Tubing either in pre-cut lengths or coils

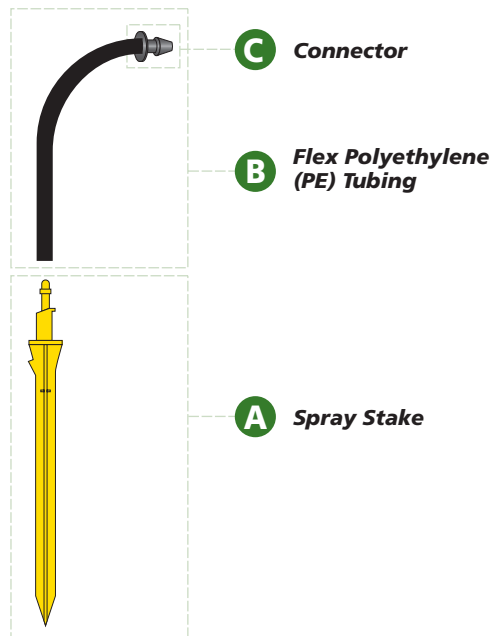
Pre-Cut Length	Color	Item Number	Bundle Quantity
36"	Black Flex PE	40001-001300	100
48"	Black Flex PE	40001-001400	100

OR

Coil Length	Color	Item Number
1,000'	Black Flex PE	40001-001980
3,000'	Black Flex PE	40001-002000

- C Connector** • Select a 5mm Barb x Threaded Connector for each Spray Stake

Item Number	Bag Quantity
32500-001125	250



Specifications

Flow Rates

Spray Stake	psi	GPM	GPH
Yellow	15	0.06	3.3
	20	0.06	3.8
Green	15	0.08	4.6
	20	0.09	5.3
Black	15	0.10	6.0
	20	0.12	6.9

Technical Specifications

Filtration	120 Mesh
Operating Pressure	15 - 20 psi
Stake Length	4.12"
Tubing	Black Flex PE 5/3mm
	0.197" x 0.125"
	White Flex PE 5/3mm
	0.197" x 0.125"
Spray Radius	12" - 16"*
Spray Pattern	160 Degrees

*Based on flow at an average of 15 psi.

Sample System Layout with Netafim Spray Stakes





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